A REVIEW OF 282 OPERATIONS FOR NON-MALIGNANT DISEASES OF THE STOMACH

BY

B. G. A. MOYNIHAN, M.S., F.R.C.S.

LEEDS

[*From Volume 89 of the 'Medico-Chirurgical Transactions'*]

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Received February 6th—Read May 22nd, 1906

In the following paper I have analysed and summarised all the cases of non-malignant diseases of the stomach upon which I had operated up to the end of the year 1905.

The cases are arranged in four groups:

Class 1.—Perforating ulcer of the stomach and duodenum.

Class 2.—Cases operated upon urgently on account of hæmorrhage.

Class 3.—Chronic ulcer in its various forms; dilatation of the stomach.

Class 4.—Hour-glass stomach.

In all there have been 282 operations, with a total mortality of 18, equivalent to 6·3 per cent. The results are briefly:

Class 1,	24 cases,	9	deaths.
,, 2,	27 ,,	4	,,
,, 3,	209 ,,	2	,,
,, 4,	22 ,,	3	,,

Class 1.—Summary of Cases of Acute Perforating Ulcer.

Since April 30th, 1897, the date of my first operation, I have had under my care 24 cases of perforating ulcer of the stomach or duodenum. In these 24 cases there were 15 recoveries (62·6 per cent.) and 9 deaths (37·5 per cent.). There were 8 cases in which a duodenal ulcer had perforated; 16 in which a gastric ulcer had perforated. In the first 10 cases there were 6 deaths; in the last 14 cases there were 3 deaths. My first case recovered, and then in succession were 5 unsuccessful cases.

The ages of the patients varied from 17 to 44. The cases of gastric ulcer were 16 in number; of these, 2 were males, aged 23 and 24, 14 females of average $27\frac{1}{12}$. The cases of duodenal ulcer were 8 in number; of these, 4 were males, aged 44, 25, 22, and 40; 4 females, aged 17, 17, 25, and 38.

An inquiry into the previous history of the cases of gastric ulcer showed that in every case, with one exception—and in that no record of inquiry is made—the patient had suffered from symptoms referable to the ulcer for periods varying from a few weeks to several years. Of the 12 patients, 6 had been under treatment within a year of the occurrence of the perforation for indigestion, vomiting, or hæmatemesis and anæmia.

Similarly, in every case of perforated duodenal ulcer previous symptoms had been observed, and 4 of the 8 patients had recently been under treatment. In none of these cases had relief been afforded.

In the majority of the patients there had been no increase in the severity of the symptoms during the few days preceding perforation. In 3 of the 24 cases, however, a distinct and notable exacerbation is recorded.

The time which elapsed between the perforation of the

ulcer and operation varied from three hours and fifty minutes to four days.

In 5 cases the perforation was of the type described as "subacute." In one of these the operation was performed twenty-eight hours after the rupture; the patient died in the fourth week from a subphrenic abscess, with multiple points of suppuration within the abdomen. The second case was one of perforated duodenal ulcer, which was operated upon four days after perforation. The ulcer was closed, and a second posterior incision was made to afford drainage; the patient recovered. In the third case the ulcer was on the posterior surface and a collection had formed in the lesser sac. The general peritoneum was also involved. An anterior and a posterior incision were made in this case also. Recovery was most satisfactory.

The perforation was found on the anterior surface of the stomach in 14 cases, on the posterior surface in 2 cases. As a rule, the perforation was near the lesser curvature and towards the cardiac end. In one case two perforations were found, both on the anterior surface, about $1\frac{1}{2}$ inches apart. In one case the perforation occurred in the centre of an hour-glass stomach, and gastroplasty had to be performed. In the 8 duodenal cases the perforation was found in the first portion seven times, in the beginning of the second portion once. In 4 cases in the whole series gastro-enterostomy was performed immediately after the closure of the perforation; in 3 cases recovery followed. In 2 cases the subsequent performance of gastro-enterostomy has been necessary owing to the persistence of symptoms due to the ulcer, or to the scar left by it. There were, therefore, 15 cases of recovery from the perforation; in 3 of these gastro-enterostomy had been performed, and in 1 gastroplasty for an hour-glass stomach; of the remaining 12, 2 suffered to such a degree as to necessitate the performance of a second operation, gastro-enterostomy.

In the 24 cases there were, therefore, 7 in which an

immediate or a subsequent operation for the adjustment of the mechanical conditions of the stomach was necessary. Two of the patients suffered from perforation while they were waiting for operation—one in the hospital, one in a nursing home. Both had complained for years of indigestion and vomiting; both had dilated and hypertrophied stomachs for which a gastro-enterostomy was to be performed. In one a duodenal ulcer, in the other an ulcer at the pylorus, had perforated. In both the ulcer was closed and an immediate gastro-enterostomy performed. Both patients recovered and remained perfectly well. In one case the patient was operated upon for the perforation of a gastric ulcer and was apparently doing well. On the 13th day she was suddenly seized with acute pain, became collapsed, and died in an hour and a half. At the post-mortem a perforation of a duodenal ulcer was found.

The cause of death in 7 cases was shock, or a want of recovery from the condition of collapse, often profound, which existed before operation. In one case death resulted from empyema, and in one case from subphrenic abscess and suppuration at several points within the abdomen.

None of the patients who recovered suffered from any chest affection, from parotitis, thrombosis of veins, or from hæmatemesis during the time they were under treatment after the operation. In one of the fatal cases there was slight hæmatemesis. The question of drainage was determined entirely by the needs of each individual case. There was no rule in one's mind that had necessarily to be followed; what seemed appropriate to the case was adopted. As a rule, the earlier the case was seen, the less was the need for drainage. Lavage was adopted only when the case was of long duration. When the stomach was found distended with fluids, it was emptied by the stomach-tube during the operation. In all, drainage of the abdomen was adopted in 12 cases; in 2 of these posterior drainage as well as anterior was necessary, and in 2 others suprapubic drainage as well as drainage through the wound was established.

Class 2.—Summary of Cases in which Acute Hæmorrhage was the Immediate Cause of Operation.

In 27 cases the hæmorrhage was sufficiently severe to demand operation for its relief alone. In two of these no ulcer was found at the operation; in 14 gastric ulcers alone were found, four cases having multiple ulcers. The ulcers were situated near the pylorus in 10 cases and on the lesser curvature in 3.

In 7 cases duodenal ulcers alone were found, involving the first part in all but one.

In 4 cases duodenal and gastric ulcers were observed.

Hæmatemesis only (without melæna) occurred in 8 cases, 6 having gastric ulcer, 1 gastric and duodenal ulcers; in 1 no ulcer was found.

Melæna alone occurred in 4 cases, all of which had duodenal ulcers only.

Hæmatemesis and melæna together were noted in 15 cases, 8 having gastric ulcer, 3 duodenal ulcer, 3 gastric and duodenal ulcers; there was 1 in which no ulcer could be found.

	Hæmatemesis.	Melæna.	Both.
G.	6	—	8
D.	—	4	3
G. and D.	1	—	3

Mortality.—Four of these cases died—1 in four hours from the operation, at which no ulcer could be found; at the autopsy dilated gastric veins and cirrhosis of liver were demonstrated; 1 on the eleventh day from pneumonia; 1 on the eighteenth day from exhaustion; and 1 in three weeks from gradual exhaustion (in this case the blood contained only 47 per cent. hæmoglobin before operation).

In no case did hæmorrhage recur after operation. In 3 of the cases which recovered the estimation of hæmoglobin before operation was only 18 per cent.

Operative treatment.—In every case posterior gastro-jejunostomy was performed.

In 21 this was the only treatment adopted; 2 of these died.

Gastro-jejunostomy was combined with excision of the ulcer in 2 cases, 1 of which died.

Gastro-jejunostomy with infolding of the ulcer was done twice.

Gastro-jejunostomy with infolding of a pyloric ulcer in 1 case, which died.

Gastro-jejunostomy with infolding of the pylorus and of the ulcer was performed once; the patient recovered.

Class 3.

The following is an analysis of all cases of simple disease of the stomach (except those operated upon urgently for perforation and those operated upon for hour-glass stomach) upon which I have operated.

In this series there are 236 operations upon 230 patients.

In the 230 patients, evidence of an ulcer was found in 213.

Gastric ulcer alone was found in 150 cases
Duodenal „ „ 33 „
Both gastric and duodenal ulcer in 30 „

Of the remaining 17 cases, 5 suffered from pyloric obstruction due to chronic cholecystitis, no ulcer could be found in 11 (in 1 of these the symptoms were due to gastroptosis) and in 1 the condition found is not recorded.

As regards the symptoms in 230 cases, vomiting is noted as having occurred in the course of the patient's illness in 183 cases. Hæmatemesis had been noticed in 79 patients (including the case of cirrhosis and uraemia); in 21 of these the hæmatemesis was associated with melæna, while melæna only was noticed in 10 cases. Peristaltic waves were visible before operation in 52 cases. A palpable tumour was recognised before operation in 7 cases, it was due to inflammatory lump at the pylorus in 4 cases, to inflammatory lump at the pylorus and duodenum in 1 case, to inflammatory lump in the duodenum and chronic

pancreatitis in 1 case, and to universal gastric adhesions in 1 case.

Tetany of varying degree was noted in 10 cases; in all there was gastrectasis.

Coldness, lividity, and cyanosis occurred in 15 cases, and I feel sure in several others where I omitted to make a note of it.

As regards the relation between pain and gastric adhesions; in the histories of 189 patients pain is definitely noted; in 100 of these gastric or duodenal adhesions were found at operation. The pain is described as "severe" in 32 cases, 19 of which had adhesions. The occurrence of a former perforation is suggested, either by the previous history, or by the conditions found at operation, in 8 cases of this series. In 2 the perforation was "acute" in 6 probably "subacute."

Gastric Ulcer alone (70·4 *per cent. of the total number of Ulcers*).

Of the 150 cases where gastric ulcers alone were found, 101 (67·3 per cent.) were in females and 49 (32·7 per cent.) in males.

In 105 cases but a single ulcer could be found; in 67 of these it was at or near the pylorus, in 7 on the anterior wall, in 14 on the posterior wall, in 5 near the cardia, while the majority of the remainder were on the lesser curvature.

In 45 cases the ulcers were multiple, the greater number of these being at or near the pylorus, and on the posterior surface. In addition to these, 18 cases of single ulcer showed adhesions elsewhere. These adhesions undoubtedly marked the site of former ulcers, so that the proportion of single to multiple ulcers in the stomach only was 87 to 63.

The incidence of pain after food in 51 cases was:

Within 1 hour . . .	51 per cent.
1 to 2 hours . . .	27·5 „
2 to 3 hours . . .	13·7 „
"Hunger pain" . .	7·8 „

Duodenal Ulcer alone (15·5 *per cent. of the total number of Ulcers*).

Of the 33 cases where duodenal ulcer alone was found, 24 (72·7 per cent.) were in males and 9 (27·3 per cent.) in females. In the 27 cases where the position of the ulcer was noted, it was situated in the first part in 23 (85·2 per cent.) ; in the second part in 2 (7·4 per cent.), while in 2 cases 2 ulcers were found, 1 in the first and one in the second part.

The incidence of pain after food in 21 cases was:

Within 1 hour . . .	14·3 per cent.
1 to 2 hours . . .	33·3 „
2 to 3 hours . . .	23·8 „
"Hunger pain" . .	23·8 „
At night	4·8 „

Duodenal and Gastric Ulcer (14·1 *per cent. of the total number of Ulcers*).

Duodenal combined with gastric ulcers were found at operation in 30 cases, 18 (60 per cent.) being males, and 12 (40 per cent.) being females.

In 21 cases only one ulcer was found in the stomach, generally situated near the pylorus ; in 7 cases more than one gastric ulcer was found.

The situation of the duodenal ulcer was noted in 22 cases, the first part of the duodenum was involved in 19 cases.

The incidence of pain after food in 15 cases was:

Within 1 hour . . .	40 per cent.
1 to 2 hours . . .	13·3 „
2 to 3 hours . . .	13·3 „
"Hunger pain . . .	26·7 „
At night	6·7 „

Comparison of Gastric with Duodenal Ulcer.

	Male.	Female.
Gastric . . .	32·7	67·3 = 100
Duodenal . .	66·7	33·3 = 100

Hæmorrhage.—The relation between duodenal ulcer and hæmorrhage is brought out in the following table:

	Hæmatemesis.	Melæna.	Both.	No hæmorrhage.
Of all cases of peptic ulcer (213)	56	10	21	126
Of all cases of duodenal ulcer	7	8	12	36

Operative treatment.

Gastro-enterostomy	Gastro-jejunostomy	Posterior	Suture	216	Total 224
			Murphy's button	1	
		Anterior	Laplace forceps	3	
			Simple	1	
			Roux's	1	
	Gastro-duodenostomy		Finney	2	
Pyloroplasty				3	
Enteroplasty				1	
Gastro-enteroplasty				1	
Entero-anastomosis	anastomosis in Y (Roux)			1	
	lateral anastomosis			4	
Excision of ulcer alone				1	
Exploratory				1	
			Total	236	

Three of the earliest gastro-jejunostomies were done with the aid of Laplace forceps; two of these were quite satisfactory, but the third relapsed after a month of relief, and when a second gastro-jejunostomy with Murphy's button was done the former opening was found almost completely closed.

Gastro-enteroplasty.—In two cases gastro-enterostomy had previously been performed by other surgeons, and after temporary relief the symptoms had returned. In one case the anastomosis had been made by Murphy's button, and I found the opening almost closed. In the other case the anastomosis, made by the aid of a bone bobbin, had contracted, and was found high up on the posterior surface, near the lesser curvature. In the former case the opening was considerably enlarged and the union of the stomach and the jejunum effected by suture; in the latter the opening was brought down to the greater curva-

ture by a plastic operation, and, owing to the existence of a long jejunal loop, a Roux's operation also was performed, the loop being divided, the distal end closed, and the proximal implanted into the side of the jejunum about three inches below the anastomosis.

Entero-anastomosis was necessary in four cases, owing to the constant vomiting of bile after the operation. Two of these cases occurred early in my experience, before I adopted the "short-loop" operation. The result in both was most satisfactory. In the third case anterior gastro-enterostomy had been performed by another surgeon. Persistent vomiting followed. I re-opened the abdomen and found the distal limb of the jejunum constricted by numerous adhesions. These were divided, and entero-anastomosis also performed. The result was good. In the fourth case a hernia of the small intestine through the opening in the mesocolon was found. Benefit was derived from reduction of the hernia, closure of the opening round the anastomosis, and entero-anastomosis.

Roux's operation was performed twice, once in the case mentioned above, and once in a patient upon whom I had previously operated for a perforating ulcer. Owing to the extremely dense and very numerous adhesions I could not obtain access to the posterior surface of the stomach, and I therefore performed Roux's operation to the anterior surface.

Enteroplasty was performed in one case. Gastro-enterostomy had been performed two years before by another surgeon, but after some months of relief vomiting returned and became serious at the last. On re-opening the abdomen I found the distal limb of the jejunum constricted by a very tight band, the division of which did not relieve the place of constriction in the bowel where a stricture had developed.

Two of the three cases of pyloroplasty required a subsequent gastro-jejunostomy, which effected a cure; one case relapsed five weeks, the other three years and six months, after the pyloroplasty.

Other secondary operations in this series are :

One gastro-jejunostomy by suture for return of symptoms two years after posterior gastro-jejunostomy by Murphy's button ; the former opening was found to be almost closed. One gastro-jejunostomy for return of symptoms after gastro-plasty for hour-glass stomach.

In six cases cholecystotomy and in one case cholecystectomy were performed at the same time as gastro-jejunostomy. In one case ovariotomy was simultaneously performed and in one case radical cure of a right inguinal hernia. In one case, gastric ulceration following the drinking of corrosive acid, the gastro-jejunostomy was supplemented by Senn's gastrostomy, and a catheter inserted through the latter opening was directed into the efferent jejunal limb, through which the patient was fed for two and a half weeks.

In one case perforation of a pyloric ulcer occurred three hours before the time arranged for operation. In a second case a perforation of a duodenal ulcer occurred about two hours before operation. At both operations the perforation was closed and gastro-enterostomy performed.

Hæmatemesis occurred shortly after gastro-jejunostomy in two early cases, but in neither was it lasting.

Obstruction due to hernia of the small gut through the opening in the mesocolon occurred thrice ; in two cases the hernia was reduced, once by myself, once by another surgeon ; the third patient died.

Stitch abscesses were noted three times, followed in one case by slight bulging at the site of the wound.

Parotitis delayed recovery in two cases, one gastro-jejunostomy and one gastro-duodenostomy.

Mortality.—In the 209 operations for chronic ulcer, apart from acute hæmorrhage, there were two deaths. In this series there have been 111 cases in succession without a death.

In this complete series all the cases were cured with the exception of 15 ; of these 10 may be classed as "relieved," and 5 as "no better."

Five cases which are no better:

(1) A case of contracted stomach with extensive perigastritis. The condition was possibly syphilitic. The last report is that "operation has not made much difference."

(2) A case of a girl in whom adhesions of the pyloric end of the stomach to the anterior abdominal wall were found. Pain and vomiting were continuous before the operation, ceased after operation while the patient was in the infirmary, but have returned as severely as ever. Dr. Stitt Thomson writes: "She is altogether in a very unsatisfactory condition." This, I think, is the most unsatisfactory case of all.[1]

(3 and 4) There are two patients whose symptoms were due to no ulcer discoverable at the operation. They are intensely neurotic, and I believe that that is the explanation, if it can be called one, of their condition. They are both in virtually the same condition as before the operation.

(5) A case of ulcer adherent to the under-surface of the liver. There was great improvement and a gain of two stones in weight, but lately pain and emaciation have been observed.

Ten cases which are improved:

In four cases the ulcer was on the lesser curvature close to the cardia, with adhesions to the under-surface of the left lobe of liver and diaphragm. These patients are all better since the operation; two of them have gained over one and a half stones, but all of them complain still of occasional pains, sometimes severe, radiating upwards into the chest. In one of these pyloric obstruction also was present due to a second ulcer. In one, the patient who gained over three stones after the operation, has lost almost two stones of this increase, and has to restrict her food almost entirely to semi-solids and fluids.

In 6 cases hyperchlorhydria was marked before the operation, and in these the lack of complete recovery may be due to a persistence of this condition. They all com-

[1] I have recently performed Roux's operation upon this patient, with absolute relief up to the present.

plain of "burning" pain in the epigastrium, fulness after meals, and flatulent distension of the epigastrium. All are relieved by a mixture containing bismuth, potassium bicarbonate, and morphine. All are improving slowly. In 5 of these cases there was no pyloric obstruction. In 3 of them no ulcer was found at the operation.

The total, therefore, in this series of cases is 209 cases, with 2 deaths; there are 5 patients who were not benefited by the operation in the least and 10 who are relieved to some extent only.

What are the lessons to be learnt from this series? Briefly, I think, the following:

(1) "Neurotic" cases are unsuited to operation. These patients have what may be called "sensitive stomachs"—that is to say, that food, instantly upon its entrance, causes pain. There is no interval of comfort after food, of a quarter to two or three hours' duration, as is almost invariable in gastric ulcer. Their complaints, moreover, are vague, uncertain, apt to vary. If, therefore, a neurosis of this sort be suspected, but because of doubt the abdomen be opened, the abdomen should be closed without any short-circuiting operation being performed.

(2) Patients who have pronounced hyperchlorhydria before operation should be treated by alkalies, etc., afterwards, and the supervision of the diet continued for a longer period than is necessary in ordinary cases.

(3) If the ulcer be at the pylorus, nothing better than the operation of gastro-enterostomy can be practised. In cases of definite pyloric obstruction gastro-enterostomy gives results which may be compared favourably with the results of any operation in surgery.

(4) Ulcers on the lesser curvature away from the pylorus, not causing obstruction, should, if possible, be excised. If adherent to the liver or the diaphragm, the adhesions should be broken down, the ulcer excised, and probably gastro-enterostomy also performed.

(5) Ulcers in the duodenum, at or near the pylorus, should be infolded and buried by suture, as is done when

perforation has occurred. This is especially necessary in duodenal ulcers, for perforation of these has been observed after gastro-enterostomy. The infolding of an ulcer is easier than excision and quite as effective.

(6) Adhesions affecting the body of the organ should be separated, especially when they affect the abdominal wall, the diaphragm, or the liver. Even if adhesions re-form they are not so likely to distort and drag upon the stomach as are those caused directly by ulceration.

(7) Chronic inveterate dyspepsia is due in the great majority of cases to conditions interfering with the proper mechanical action of the stomach. It is a condition which should be treated by operation.

Class 4.—Summary and Analysis of Cases of Hour-Glass Stomach.

The 22 cases are made up of 7 males and 15 females. In every case there had been previous symptoms pointing to chronic gastric ulcer. In 4 cases the history is strongly suggestive of a former "subacute" perforation, while in a third case the urgency of a perforation indicated operative measures.

The total mortality is 3—1 on the fourth day, from septicæmia, resulting from a strangulated rectal prolapse; 1 in the third week, from suppression of urine; 1 on the fifth day, from pneumonia.

The ulcer in the stomach was associated with duodenal ulcer in 2 cases (1 male and 1 female).

In 1 case a pancreatic cyst was also found at operation. Adhesions to the anterior abdominal wall were met with in 4 cases. Trilobed stomach was seen once.

The following operations were performed.—Gastro-enterostomy alone 7 times, 1 death, 6 cures. Gastro-gastrostomy and gastro-enterostomy 3 times, 2 cures, 1 great relief. Gastroplasty alone 7 times, 5 cured; in 2 secondary operations were necessary; gastro-enterostomy gave com-

plete relief. Dilatation of stricture, once; cure. Gastroplasty and gastro-enterostomy twice, one death. Gastro-gastrostomy alone, once; cure. Gastro-enterostomy and Loreta's operation once, the patient died.

Results.—Twenty-two cases, 3 deaths; 2 secondary operations (gastro-enterostomy) for return of symptoms; 1 secondary operation, entero-anastomosis for regurgitant vomiting after gastro-enterostomy.

One patient has since died of puerperal fever. The remaining patients are all living, all are completely cured, except one, who, though very greatly improved, still has occasional discomfort after heavy food. This patient had an hour-glass stomach and an hour-glass duodenum, there being four pouches and three constrictions.

For the preparation of the statistics in this paper I am indebted to Mr. H. Upcott, F.R.C.S.

DISCUSSION.

Mr. H. J. Paterson thought a most valuable point brought out in the paper was the steadily diminishing mortality after gastro-jejunostomy, being in his cases as low as a little over 1 per cent., or about the same as after appendicectomy in the quiescent stage. The after-history of gastric operations was often difficult to ascertain, and those given in the paper were very valuable. Of 116 consecutive cases of operation for perforation that he had collected, in 92 per cent. there was a definite history of ulceration, and in only a small proportion was there any history of hæmatemesis. The proportion of cases in which perforation occurred in the posterior wall was 12 per cent., showing that the ulcer was usually accessible. It was desirable to give a thorough trial of gastro-jejunostomy after suture of a perforated gastric ulcer to be done at the same time. This would probably diminish the mortality of the operation for perforation. This method had many advantages, among other things allowing calomel to be administered shortly after the operation, thus permitting of intestinal drainage. Hardly any of his cases in which Murphy's button had been used obtained complete relief, owing to the liability of the opening to close. Relapse was frequent after pyloroplasty. There was doubt as to the exact value of gastro-jejunostomy for hyperchlorhydria. In neurotic cases the operation was certainly inadvisable. As to hour-glass stomach, had Mr. Moynihan tried the operation of connecting each pouch separately with the jejunum, no operation being performed on the morbid tissue round the constriction?

Dr. Hale White said that as many of the cases which have been described by Mr. Moynihan came first to a physician he felt that physicians as well as surgeons owed a debt of gratitude to Mr. Moynihan for the work he had done on the subject. There was no doubt that many patients who were formerly left to linger as sufferers of chronic dyspepsia were now, thanks to the advances in surgery, made healthy, useful members of society. Perhaps the most difficult of the cases to which Mr. Moynihan had referred were those of gastric hæmorrhage, and in particular he (the speaker) would like to direct attention to two in which no cause was found at the operation to explain the hæmorrhage. He had collected twenty-five of these cases, all of which had severe vomiting of blood and in none of which could any cause for the bleeding be found, although in each of the twenty-five the interior of the stomach was carefully examined either at an operation or after death. There was no doubt that there was a distinct disease, the chief symptom of which was oozing of blood from the gastric mucous membrane, and that other symptoms were vomiting, pain after food, and pain and tenderness independently of food. This disease was mostly met with in young women between the ages of twenty and thirty, but

two of the twenty-five cases occurred in men. It undoubtedly tended to get well of itself, for it was rarely met with over the age of thirty-five or forty. Careful examination post mortem showed that none of the ordinary causes for hæmatemesis were present. There were no ulcers, no disease of the liver or heart. The cause was certainly not vicarious menstruation, for, as already mentioned, two occurred in men. Whether or not the disease bore any relationship to chlorosis was yet undecided. The blood could be seen at operations to be oozing from one or more points of the gastric mucous membrane. The best treatment was to keep the patient quiet and give her some ice to suck; the bleeding would then nearly always stop. Out of 32,000 medical cases at Guy's Hospital, many of which had been examples of hæmatemesis in young women, only four of these cases of oozing had been fatal; two of those were operated upon. There was no doubt that it was inadvisable to operate upon these cases, for all the figures showed a high mortality if the operation was done during hæmorrhage; it was a mortality of over 50 per cent., a serious matter when they considered that almost invariably the disease got well when left alone; and further, it was difficult to see what benefit could follow an operation when the blood was oozing from the stomach in several places. Nor was there any object in operating between the attacks. In the same way the speaker was strongly of opinion that even when the hæmorrhage was due to a gastric ulcer it was bad treatment to operate while the hæmorrhage was proceeding. The hæmorrhage was rarely the cause of death. Many patients had died shortly after they were operated upon if operation had been done during the bleeding, and probably any patient, however furiously he or she might be bleeding from the stomach, stood a far better chance of recovery if left alone than if operated upon during the hæmorrhage. If cases of genuine gastric ulcer vomited frequently the best treatment was to do a short-circuiting operation between the attacks of hæmorrhage.

Mr. Eve fully agreed with the remarks that had fallen from Dr. Hale White. He had himself reported cases of severe hæmatemesis in which no ulcer was found on opening and exploring the stomach. He considered that our present position in regard to the diagnosis of chronic ulcers was most unsatisfactory. There were no signs which could be in the least degree considered characteristic. He related two cases recently operated on by him in which no ulcer was found. Both patients presented all the so-called characteristic signs of chronic ulcer; namely, pain after food, vomiting, hæmatemesis, superficial hyperæsthesia, and deep tenderness. Both had been treated medically for considerable periods without relief. The uncertainty regarding diagnosis rendered it especially necessary that a most careful examination of the stomach and duodenum should be made after opening the abdomen, before clamps were applied and gastro-enterostomy performed. Palpation of the stomach wall sufficed

in some cases, but should not be too much relied on. In any case presenting the slightest doubt, he opened the stomach posteriorly and examined it with a head lamp and speculum by eversion of the mucous membrane, and if necessary he passed a forefinger through the pylorus into the duodenum. A clamp was subsequently applied near the edge of this incision into the stomach, and it was utilised for anastomosis with the jejunum. He agreed with most of the recommendations which formed the conclusion of Mr. Moynihan's able paper; but could not altogether follow him in regard to No. 4, which advocated the breaking down of adhesions to the liver or diaphragm and the excision of ulcers of the lesser curvature. He thought that such adhesions should be treated with the utmost caution. In one of his earlier cases an adhesion to the liver no larger than the tip of an index finger, when divided, proved to correspond with the base of an ulcer which penetrated deeply into the liver substance itself. In regard to excision of such ulcers, it must be remembered that they often involved a much more extensive area of the interior of the stomach than might be expected from the extent of the adhesion or surrounding induration. Mr. Eve asked Mr. Moynihan what he considered to be the typical symptoms of chronic ulcer? After opening the abdomen on what symptoms did he rely for recognising the presence of an ulcer? And roughly in how many cases in his series had he found it necessary to explore the interior of the stomach before performing gastro-enterostomy?

Dr. F. H. Hawkins alluded to the rarity of death from even the severest hæmatemesis.

Mr. Moynihan, in reply, said that the most difficult question in gastric surgery was that of operation for hæmatemesis. He had quite recently known of two deaths from hæmorrhage in duodenal ulcer without operation. Probably such cases did not obtain admission into hospital. The mortality from hæmorrhage in chronic gastric or duodenal ulcer was probably much greater than was usually computed. The constant recurrence of hæmorrhage made operation necessary. With symptoms of gastric or duodenal ulcer, and hæmorrhage at decreasing intervals and in increasing quantities, operation was called for. However definite the symptoms of gastric ulcer might be, cases occasionally showed no ulcer, but the chance from operation should be given. No single hæmorrhage, whatever its quantity, justified operative treatment. The after-history of these cases was of the utmost importance, to afford ground for a decision as to what operation was suitable in different cases. In all cases of perforation there should be gastro-enterostomy as well as suture, in view of the occurrence of multiple ulcers in the same patient. He cared less than ever for drainage in any abdominal operations. Plastic operations for hour-glass stomach were not, he thought, indicated. Operation should in no case be undertaken during the hæmorrhage.